

MANAGING SOLID WASTE

November 1998

Volume 3 Number 2

Indiana Composting Facilities

Composting allows for the reclamation and reuse of materials that would otherwise end up at Indiana's landfills and incinerators. The Indiana Department of Environmental Management administers a registration and annual reporting program for facilities composting vegetative matter. Indiana composting facilities process between 1 and 2 million cubic yards of vegetative matter annually – mostly leaves, wood, and brush. About half the compost produced each year is given away by local governments as part of their reuse and recycling efforts.

This paper is the 9th in the series "Managing Solid Waste" by the IDEM Office of Solid and Hazardous Waste Management. For more information, contact the Waste Data Analysis and Planning Section at (317) 233-3834. A copy of this paper can be downloaded at <http://www.state.in.us/idem/oshwm/>.

In This Issue...

page

Introduction	1
Operation Requirements	2
Materials Processed	3
Final Uses of Compost and Other Products . . .	5
References and Further Reading	5

Authors: Minerva Mercado-Feliciano
Richard Worth

INTRODUCTION

Composting is the transformation of vegetative matter and other organic materials into a humus (or compost) better suited as fertilizer than the original materials. The transformation is accomplished through natural biochemical processes. Composting is one of the main processes used to reclaim and reuse vegetative matter. Other processes include mulching and land application.

Yard wastes are estimated to make up approximately 13% by weight of the municipal solid waste stream. This includes mostly vegetative matter like leaves, brush, wood, and grass. The diversion of these materials from final disposal can increase the life of Indiana landfills. In addition, the re-use of discarded vegetative matter as either compost or mulch decreases the use of chemical fertilizers and other landscaping products that can have a much larger environmental impact.

In 1992, the Indiana Legislature approved Public Law 84, now codified as IC 13-20-9. This law includes a restriction on disposal of vegetative matter. The ban applies to residential, commercial, and industrial sources. The Indiana Department of Environmental Management has issued guidance to interpret which materials are subject to the ban or not. (See Table 1. More information regarding the yard waste ban can be found in the nonrule policy document "Important Notice Regarding the Yard Waste Disposal Ban", available from IDEM's office of Solid and Hazardous Waste Management.)

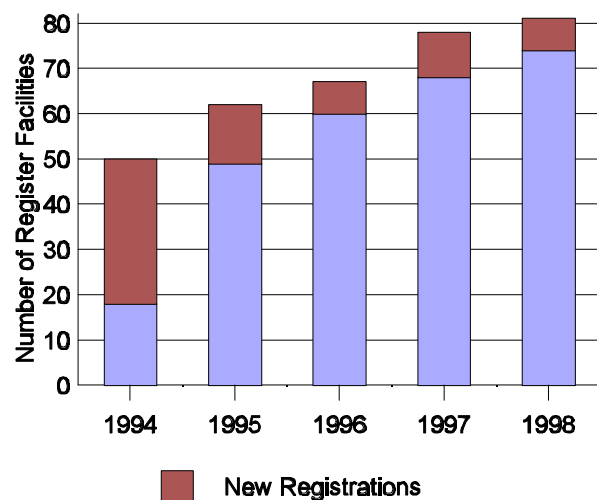
Indiana Composting Facilities

As of November 1998, there are 81 registered composting facilities in Indiana. This is an increase from the 50 facilities registered in 1994, the first year registration was required (see Figure 1). It is important to note that several facilities were inactive at some point during the last 4 years (see Table 3).

Figure 2 shows the county location of the facilities registered with IDEM in 1998. More than half of Indiana counties have at least one composting facility.

Table 1. Summary of Indiana's Yard Waste Ban	
Materials SUBJECT to the Yard Waste Disposal Ban	<ul style="list-style-type: none"> • leaves • brush • woody vegetative matter greater than 3 feet in length
Materials EXEMPT from the Yard Waste Disposal Ban	<ul style="list-style-type: none"> • grass • woody vegetative matter bagged, bundled, or otherwise contained AND less than 3 feet in length • very small amounts of vegetative matter bagged, bundled, or otherwise contained AND less than 3 feet in length AND combined with other solid waste • Christmas trees • house plants • vegetable food scraps • vegetative by-products not derived from landscaping maintenance or land clearing projects such as from flower shops and funeral homes • Department-approved composted vegetative matter used as cover material for a solid waste landfill

Figure 1. Number of Registered Composting Facilities



OPERATION REQUIREMENTS

Composting facilities are required by state law to register with IDEM. Each registration is valid for 5 years, and can be renewed by submitting an updated registration form to IDEM 90 days prior to expiration.

There is no fee for registration or renewal. Composting operations that process less than 2,000 pounds of vegetative matter during a year are exempt from these registration requirements.

In addition to the registration requirements, the law requires that the facility operator submit an annual report to IDEM. The Composting Facility Annual Report indicates the amount of vegetative matter processed during the previous year, and the final use of the compost. This reporting program was first implemented for 1994.

Indiana Composting Facilities

MATERIALS PROCESSED

The 76 facilities active in 1997 accepted approximately one (1) million cubic yards (about 190,00 tons) of organic materials. This amount is an approximation for two reasons:

1. Composting facilities are required to report their intake in volume units (cubic yards), even though some use scales to keep track of their intake of materials.
2. Some loads of materials are not documented, especially small loads from residential or commercial customers.

Volume-to-weight conversion factors vary widely depending on the composition, moisture content, and compaction rate of the vegetative matter (see Table 2).

On average, 39% of the facilities reporting receive undocumented loads each year. Approximately 33% of the reporting facilities each year estimate they receive small undocumented loads from residential or commercial customers. About 26% of the facilities report receiving larger loads from

various sources, including county and city trucks.

Table 2. Examples of Conversion Factors for Compostable Materials (Cubic Yards Per Ton)

Material Description	Loose	Compacted
brush	6.67	2.20
brush, shredded	5.37	--
cardboard	6.67	--
food waste	1.30	--
grass	5.00	2.50
leaves	10.00	5.00
leaves, shredded	6.70	5.71
mixed yard waste, fall	8.10	3.60
mixed yard waste, summer,	5.70	2.60
paper	4.00	--
whole wood	7.14	5.88
wood, chipped	4.00	3.60

As shown in Figures 3 and 4, leaves account for a significant portion of the total. Other materials received at composting facilities were wood, brush, grass, straw, food waste, manure and sludge. Table 3 summarizes the types of organic matter processed by each registered facility.

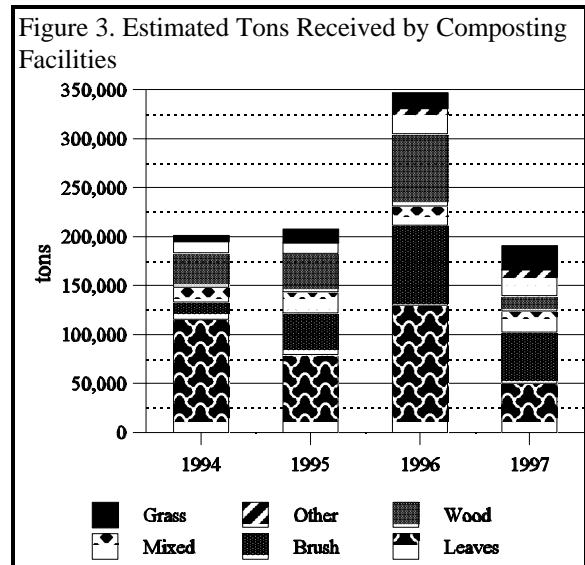
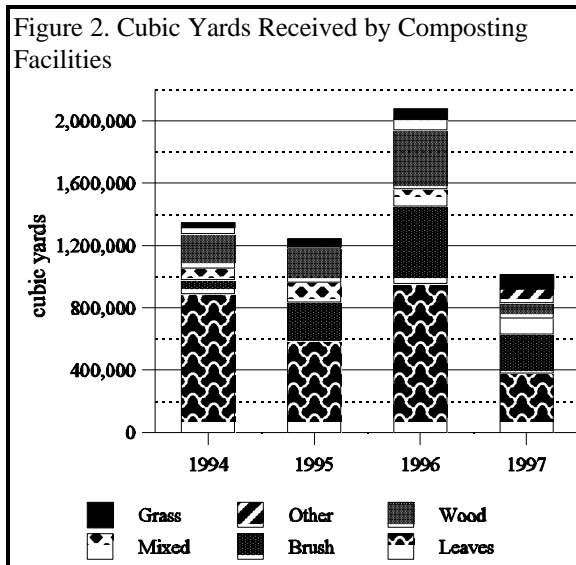


Figure 4. Indiana Counties with Composting Facilities.

• = one (1) registered composting facility

Indiana Composting Facilities

FINAL USES OF COMPOST AND OTHER PRODUCTS

Composting facilities may produce finished compost in as short as three months or as long as two years, depending on the type of raw materials, ambient temperature, and processing methods. 36% to 50% of the materials managed by Indiana registered composting facilities each year were still in the process of being converted to compost by the end of the year.

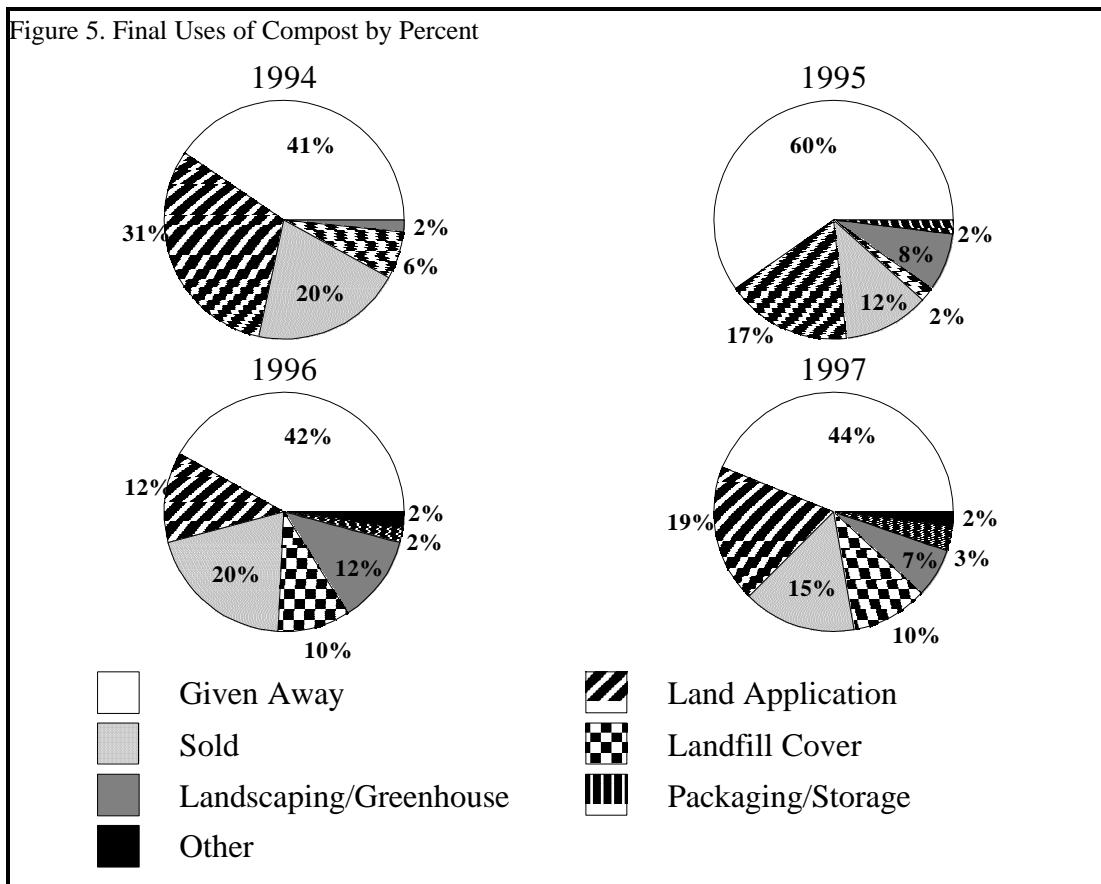
Figure 5 shows the final uses of the materials that were successfully converted into either compost or mulch during the last 4 years. About 40% to 59% of the product was given

away each year, mostly by composting facilities run by cities, counties, or solid waste management districts.

REFERENCES AND FURTHER READING

Indiana Department of Environmental Management and the Indiana Recycling Coalition, *Indiana Yard Waste Solutions*; January 1993.

U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Characterization of MSW in the United States: 1997 Update*; May 1998



Indiana Composting Facilities

Table 3. Cubic Yards of Materials Received by Indiana Composting Facilities

County	Name	1994	1995	1996	1997
Adams	Decatur Compost Facility	3,817	3,169	5,128	5,146
Allen	Allen Co. SWMD Composting Facility	not open	3,500	49,783	closed
Allen	National Serv-All Compost	2,184	479	21,676	74,470
Bartholomew	Columbus- Bartholomew Yard Waste Site	17,920	41,231	41,739	25,553
Cass	Cass Co. SW Composting Site	18,462	20,661	23,741	25,172
Clark	Clark County Compost	9,660	7,832	19,382	809
Daviess	City of Washington Composting Facility	6,070	12,628	8,820	6,863
De Kalb	Dekalb Co. Yard Waste Composting	7,509	7,928	11,188	16,086
Dearborn	Greendale Composting	1,903	2,025	1,970	4,882
Decatur	Decatur Hills Inc.	107	343	302	140
Dubois	Phoenix S. Mine	2,557	5,001	5,604	0
Elkhart	City of Goshen Composting	5,406	10,450	11,400	11,400
Elkhart	Elkhart Co. Landfill	1,456	2,219	1,155	1,344
Elkhart	Elkhart Environmental Center	43,200	42,570	42,550	42,550
Fayette	City of Connersville Compost Facility	11,010	10,550	2,470	2,300
Floyd	Earth First of Kentuckiana Inc.	66,430	77,826	75,218	79,296
Fountain	Fountain Co. Recycling Station/Compost Site	not open	not open	not open	16
Fulton	County Line Landfill	not open	9	closed	closed
Gibson	Princeton Compost	not open	not open	30,472	31,684
Grant	Circle "G" Grinding	0	0	n/a	0
Grant	Gas City Composting	not open	1,555	7,600	6,820
Hamilton	Creative Landscaping and Compost Co.	15,823	2,707	3,800	3,950
Hamilton	CSR American Aggregates Recycling and Organics	not open	3,657	closed	closed
Hancock	Caldwell Landfill	50	128	99	40
Howard	City of Kokomo Yard Waste Composting	23,275	35,465	22,477	56,012
Huntington	Huntington Composting	10,800	15,350	13,280	10,855
Jefferson	City of Madison T.S.	1,039	13,400	3,040	4,670
Jefferson	Town of Hanover Composting Facility	1,625	1,525	533	81,000
Kosciusko	Superior Excavating	33	130	210	255
La Porte	Material Recovery Solutions	not open	13,593	closed	closed
La Porte	Westville C.F. Compost Site	not open	not open	not open	300
Lagrange	LaGrange Co. Yard Waste Composting	2,882	778	3,832	4,230
Lake	City of Gary Compost	156,479	335,018	960,703	14,435
Lake	Fertile Earth Gary Compost Facility	not open	not open	not open	380
Lake	Greencycle of Indiana E. Chicago Facility	not open	8,393	24,665	9,336
Lake	Munster Landfill	not open	not open	200	0
Lake	Stuhlmacher Soil Service, Inc.	not open	300	320	325
Lake	Town of Griffith Landfill	7,688	4,287	8,293	10,535
Lawrence	Lawrence County Compost	not open	not open	not open	18,500
Marion	American Aggregates Composting Facility	not open	not open	39,402	closed
Marion	Greencycle of Indiana	16,827	29,335	82,298	68,939
Marion	O.M. Scott & Sons	171,830	1,809	35,588	40,888
Marion	Southside Landfill	11,352	43,794	16,758	13,365
Marion	Town of Cumberland	1,690	1,613	1,600	2,863
Monroe	Good Earth Composting	3,500	4,500	4,500	2,500
Monroe	Topsoil Composting Service	not open	8,950	n/a	n/a
Morgan	Greendell Farm	10,605	26,885	30,893	400
Newton	Newton County Development Landfill	not open	not open	not open	6,400
Noble	Ligonier Compost	not open	not open	not open	1,003
Porter	Crocker Composting Site	6,060	2,995	4,190	4,581
Porter	Portage Composting	4,440	12,261	11,769	10,805
Porter	Valparaiso Municipal Composting Site	10,638	16,707	20,295	26,162
Putnam	Putnamville Correctional Facility	444	416	384	360
Randolph	City of Winchester Compost	3,500	622	800	1,130
Randolph	Randolph Farms, Inc.	1,347	10,589	11,127	2,432
Shelby	Caldwell Landfill	6,491	8,024	5,787	7,347
St. Joseph	Household Hazardous Waste and Recycling Center	176,813	126,820	106,756	n/a
St. Joseph	Organic Resources	125,717	135,537	213,436	189,515
St. Joseph	Pioneer Southern Horticultural Products	not open	not open	not open	840
Steuben	Steuben Co. Yard Waste Composting	2,452	1,722	9,150	13,947
Sullivan	Wabash Valley Correctional Facility	not open	not open	not open	20
Tippecanoe	Purdue University	23,120	28,800	31,000	35,648
Tippecanoe	Tippecanoe Co. Compost Facility	not open	318	7,255	6,287
Tipton	City of Tipton Composting Facility	12,470	16,571	14,246	11,992
Vanderburgh	Laubscher Meadows Composting Facility	25,963	48,853	6,995	7,343
Vigo	Terre Haute Street Department	260,720	0	0	0
Vigo	Victory Landfill	44,515	20,353	20,815	18,185
Vigo	White Violet Center	not open	not open	not open	360
Washington	Washington Co. SWMD Composting	1,210	8,753	11,400	11,400
Wells	Mossburg Enterprises Composting Facility	2,972	n/a	3,185	closed
Whitley	City of Columbia Compost Facility	1,800	1,850	2,145	2,610